Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of:	)	
	)	
A National Broadband Plan for Our Future- "Broadband Clearinghouse"	)	**GN Dockets No. 09-47,09-51, 09-137**
	)	
	)	
	)	
	)	
	)	

COMMENTS –NBP PUBIC COMMENT #10

TELCORDIA TECHNOLOGIES

Telcordia Technologies (Telcordia) hereby submits comments to the Federal Communications Commission (FCC or "Commission") on its Public Notice requesting Comments on a broadband clearinghouse in the above-captioned proceeding.[1] The Notice seeks comments on whether a broadband clearinghouse for broadband best practices should be created. The Notice states that "A broadband clearinghouse could reduce information barriers for municipalities, agencies, business, and non-profits that want insights into more effectively utilizing broadband infrastructure, or into broadband deployment or adoption projects. Such a clearinghouse could also provide information and a forum for scholars and policymakers to gather and contribute data."

.

[1] Public Notice, National Broadband Plan –"Broadband Clearinghouse", GN Dockets No. 09-4709-5109-137, Public Notice DA 09-2167, Released October 2, 2009

BACKGROUND

Telcordia is a software and engineering and consulting company with a vested interest in expanding the deployment of broadband. Telcordia, formerly known as Bell Communications Research (Bellcore), was created in 1984 at the time of the AT&T divestiture as a unique entity with a mission to provide common R&D as well as technology generic requirements and seamless operational capabilities across all the new service provider boundaries. Telcordia is vendor neutral and technology agnostic and we have the depth and breadth of telecommunications experience to handle the full spectrum of broadband and information network engineering and design issues. We offer the following comments on the issues raised by the Commission.

DISCUSSION

Telcordia strongly supports the creation of a Broadband Best Practices Clearinghouse, in conjunction with a broader Broadband Information Administration, to support the nation's critical broadband infrastructure. We have previously addressed this concept and its value in cost and time savings and in providing an objective and fact-based framework for sound policy and decision making.[2] Broadband telecommunications and information networking underpin all sectors of the economy, government, and society and are major drivers for productivity growth in all industries and for addressing our nation's most important challenges. The need for more

[2] See Telcordia's Comment on the "Joint National Telecommunications and Information Administration – Rural Utilities Service Request for Information," Docket No. 090309298-9299-01, dated April 10, 2009, and Telcordia's Comment to the FCC on "A National Broadband Plan for Our Future," GN Docket No. 09-51, dated June 8, 2009. Additional information is available in Telcordia Working Papers titled "Clearing House of Best Practices for Broadband Deployment" and "Measuring Broadband: Metrics, Analysis, Modeling, and Mapping," both dated February 2009 and available on Telcordia's website at www.telcordia.com.

comprehensive, accurate, and useful data and information on broadband has become abundantly clear over the past months. For practitioners in both the public and private sectors, it is not just raw data that is valuable, but also objective analyses, synthesized information, guidelines, job aids, cogent summaries, and toolkits and metrics to reduce risks and support decisions.

The adoption of broadband infrastructure deals fundamentally with three interrelated areas: the design, procurement, and installation of broadband networks and systems; the operations, maintenance, and evolution of the resulting infrastructure; and the services, applications, devices, and content that deliver value to consumers, businesses, and organizations. Among the barriers to the successful adoption and use of broadband is the inherent complexity of these three areas and the breadth and depth of skill and knowledge to address all necessary items. Experience to date provides numerous examples of successful – and unsuccessful – deployments and adoption programs, permitting the identification of critical factors for success and mistakes to be avoided. The Broadband Best Practices Clearinghouse would create, maintain, update, and disseminate this information across the industry to save costs, shorten time frames, reduce risks, and increase value from broadband projects for deployment, adoption, and use in health care, energy, education, public safety, and transportation, among others.

In the remainder of this discussion we address the following topics for the Broadband Best Practices Clearinghouse: Goals, Purpose and Audience; Model and Relationship to the Broadband Information Administration; Content and Utility; and Editorship, Maintenance and Dissemination.

Goals, Purpose and Audience

The overall objective of the Broadband Best Practices Clearinghouse is to improve cost effectiveness, speed up "time to value," and increase benefits from broadband projects by:

- Accelerating the time to value of broadband deployments and of sustainable use programs in key sectors by enabling fast adoption of proven techniques;
- Reducing risk and increasing benefits by avoiding known mistakes and pitfalls;
- Decreasing replication of effort by ensuring that all organizations have access to up-to-date knowledge;
- Enhancing learning and knowledge transfer by providing resources to organizations, businesses, and practitioners, public and private, to increase their education and skills; and
- Providing a platform for research and innovation to share the results of trials and studies and advance the industry.

As noted in the NOI[3], the audience for the Best Practices Clearinghouse is wide and diverse encompassing not only relevant public sector organizations and entities across the information networking supply chain, but also individual practitioners, scholars, and researchers. Broadband infrastructure is an enabler for productivity in critical sectors such as energy, transportation, health care, education, and public safety

[3] Public Notice, National Broadband Plan –"Broadband Clearinghouse", GN Dockets No. 09-47,09-51,09-137, Public Notice DA 09-2167, Released October 2, 2009, page 2.

and the audience also includes organizations involved in adoption and use programs in these fields. More specifically, we identify the following major user groups:

- Government organizations at all levels, national, regional, state, local and municipal, involved in the oversight, management, procurement, and governance of broadband deployments and of projects for broadband adoption and use;
- Broadband service providers of all types – fixed and mobile; facilities-based and non facilities-based; and all technologies (cable, DSL, fiber, satellite, etc.);
- Providers and developers of network and end-user equipment;
- Providers and developers of information networking applications;
- Providers and developers of content and content management services including search, filtering, storage, and digital rights management, among others;
- Policy makers at all levels involved in policy development and management for communications, information networking, and broadband;
- Community organizations, NGOs and other entities working to promote high performing, connected communities;
- Businesses, citizens, user groups, and individual users of broadband services and applications;
- IT (information technology) professionals and organizations, public and private, across related industries (construction, transportation) and in critical sectors of health care, education, energy, media, public safety and emergency response; and
- Scholars, students and researchers.

To realize the desired benefits for the target audiences, the Broadband Best Practices Clearinghouse must become the go-to place for useful, up-to-date knowledge, information, job aids, toolkits, and project guidelines. This in turn requires that the management of the Clearinghouse be trusted, objective, balanced, and proactive and that the website itself be operated robustly and designed according to best practices for knowledge creation, community engagement, search, filtering, aggregation, display, and dissemination.

The Internet has brought about a revolution in the quantity of available information to both good and bad effect. As individuals and organizations, we are often at the mercy of search engines and filtering programs to sift through the deluge and try to identify potentially useful information, which we then must vet ourselves. Organizing, synthesizing, selecting, presenting, and continuously updating information so that it is reputable, trustworthy, and useful is one of the critical functions of the Clearinghouse. Creating succinct summaries and synopses of best practices, successful trials and pilots, and important studies and advances across the industry is also necessary for delivering substantive value.

The creation of a national Broadband Best Practices Clearinghouse does not start from scratch as there are numerous existing, high-quality, and useful information and knowledge repositories on various aspects of broadband. While none of these is chartered to operate as a comprehensive, nation-wide Clearinghouse, a number of organizations and groups are actively involved in relevant initiatives.[4] The Clearinghouse will build

[4] The number and variety of relevant and useful initiatives in broadband is extensive, thus precluding the provision of a complete list. We note only that there are valuable state level efforts such as the toolkits and primers offered by e-NC (http://www.e-nc.org/encManuals.asp) and the Broadband Best Practices Summit event sponsored by the California Broadband Initiative at http://www.calink.ca.gov/summit/default.asp;

upon this existing work and provide a single focal point for the aggregation and synthesis of these efforts. Careful consideration of these and of similar sites in related domains allows identification of the following necessary attributes for success:

- Trust: Users must trust the accuracy of the information provided, including its balance and inclusion, its objectivity and neutrality, its currency, and its origins and provenance.
- Comprehensive and up-to-date: To be a useful resource, the best practices clearinghouse must be comprehensive in the data sources used and it must be kept up-to-date and current.
- Transparency: The policies and processes for filtering and selecting best practices and for developing guidelines, templates, and project materials must be transparent and open.
- Easy to navigate and use: The architecture and design of the site, the organization and structure of the content, and the quality of the summaries and synopses must be driven by the goals of making the site user friendly, easy to use, and accessible to all users.
- Interactive: User engagement is critical to the impact of the site so it must provide opportunities to submit information, pose questions, provide feedback and ratings, and to influence the site so that its usefulness increases.
- Well maintained and evolvable: The clearinghouse site must not only be well-maintained and operated, but also built to be flexible, adaptable, and evolvable.

---

foundation–led efforts such as the Benton Foundation's event on "Best in Breed" for Broadband Deployment (http://www.benton.org/node/25299) and the tools and templates provided by the Knight Center for Digital Excellence (http://www.knightcenter.info/topic/id.40/name.Tools%20&%20Templates); and many other activities aimed at accelerating projects through judicious re-use of proven approaches.

The Broadband Best Practices Clearinghouse must be run and operated by an objective, neutral, and trusted organization. It should focus on synthesized information, useful guidelines and job aids, and filtering, selecting, organizing, and summarizing information for maximum utility in users' busy lives. It must be centrally funded and supported to ensure objectivity and high quality results. The community and user engagement models are critical and should provide a variety of methods including User Forums, feedback mechanisms, workshops, webinars, and many, easy opportunities for user input, knowledge transfer, interaction, and discussion.

Models and Relationship to the Broadband Information Administration

As noted above, there are a number of organizations, public and private, with current activity in the areas of resource sharing, knowledge transfer, toolkits, and job aids for broadband. There are also best practices clearinghouses in related fields operating at a variety of levels including state, national, and international, such as: The best practices clearinghouse of the Texas Education Agency which provides best practice summaries on topics ranging from instruction and college and career readiness, to dropout prevention and recovery, business management, and English language learners;[5] Virtual CAP which focuses on projects and programs by community action agencies nation-wide and includes a national resource of best practices to support excellence in community action;[6] and the Global Knowledge Exchange on Health Care which creates and maintains a global library of better practices in health care with the goal of "becom(ing) the

[5] See http://ritter.tea.state.tx.us/bestprac/.
[6] See http://www.virtualcap.org/Index.cfm.

recognized neutral venue for evaluating and promoting better practices in achieving cost-effective health outcomes from across industrialized nations." [7] The Broadband Best Practices Clearinghouse should adopt features, mechanisms, and a management and operational framework based upon these and other successful online clearinghouses and should be designed to take maximal advantage of ongoing work in broadband knowledge management and best practices.

One relevant model for the Clearinghouse is the Center for Transit-Oriented Development (CTOD) which is a national non-profit organization that provides "an impartial, fact-based perspective" on transportation systems, economic development and their interactions.[8] The CTOD has been in operation for five years and provides best practices, research, and tools to the public and private sectors in the area of public transportation development.; specifically:

> *CTOD has been funded by the federal government to serve as a national clearinghouse for best practices in TOD and to help develop standards for TOD as well as guidance for transit system planning with the goal of maximizing ridership through planning and development.* [9]

The CTOD develops guidelines, standards, best practices, and white papers. It provides tools, training, community interaction, and links to resources, materials, and updates in the field. It operates as a partnership between two non-profit organizations, Reconnecting America and The Center for Neighborhood Technology, and a for-profit research and consulting firm, called Strategic Economics. Its business model includes membership and partnering programs; workshops, forums, webinars, and other events;

[7] See http://www.gken.org/about-us.php.
[8] See http://www.reconnectingamerica.org/public/about.
[9] See http://www.reconnectingamerica.org/public/tod.

communications in a variety of media including books, white papers, and newsletters; and a technical assistance, contract research, and consulting program. The CTOD also leverages and supports a highly valuable national data resource in transportation and development; namely: "… a national TOD database – a GIS platform that includes every fixed guideway transit system in the U.S. and demographic and land-use data for the half-mile radius around all 4,000 (transit) stations."[10]

We propose that the Broadband Best Practices Clearinghouse be modeled after the CTOD. Specifically, we believe that a similar public-private partnership should underlay the overall structure for the Clearinghouse and that federal funds should be provided for a non-profit center to 'serve as a national clearinghouse for best practices, develop standards, and provide an impartial fact-based perspective.' Building the Clearinghouse upon a public-private partnership not only provides a wide base for evolving activities and programs, but it also positions the Clearinghouse in both of these critical arenas for broadband deployment, adoption, and use.

The Broadband Best Practices Clearinghouse should also leverage and support national data resources in broadband. In previous FCC filings and white papers,[11] Telcordia has made the case for the creation of a Broadband Information Administration or BIA which would serve as objective resource for data, information, maps, and statistics on broadband along with conducting analyses, tracking trends, computing performance indices, performing comparative studies, and providing a repository of data

[10] See http://www.reconnectingamerica.org/public/tod. This database will be available to the public on the CTOD's website by the end of 2009.

[11] See Telcordia's Comment to the FCC on "A National Broadband Plan for Our Future," GN Docket No. 09-51, dated June 8, 200 and Telcordia's Comment to the FCC on "A National Broadband Plan for Our Future – Comment Sought on Defining 'Broadband,'" dated August 31, 2009. Additional information is available in a Telcordia Working Paper titled "Measuring Broadband: Metrics, Analysis, Modeling, and Mapping," dated February 2009 and available on Telcordia's website at www.telcordia.com.

and analytics to the industry, government, businesses, and consumers. The data and information of this new Broadband Information Administration provide a critical foundation for the Clearinghouse which uses these statistics, metrics, and other information and serves as part of the value chain enabled by the BIA. We briefly expand on this connection in the remainder of this section.

The BIA, as we have proposed, would have the following data and information:

- Metrics and mapping on the availability of broadband infrastructure, including technology and speed, upstream and downstream, for both mobile and fixed;
- Price and affordability, including information on prices for consumers and small businesses, pre- and post-paid, and with and without bundling;
- Service quality, including advertised and average rates, and service metrics such as latency, jitter, throughput, and loss;
- Adoption and use, including usage rates by service levels, technologies, and price as well as data by service type such as peer-to-peer, voice and data, surveillance, video streaming, multimedia messaging, and machine-to-machine (e.g., meter reading, telematics);
- Broadband Performance Indices which, similar to EPA mileage standards, vehicle safety ratings, and Energy efficiency ratings, combine multiple and complex data items to provide simple, accessible, and useful benchmarks for tracking and advancing the industry;
- Trend analysis and comparative studies to provide fact-based data and assessments on how the United States compares internationally and among states, regions, cities, and municipalities;

- Reliability, robustness, and security information including data on incidents, outages, intrusions, and other service problems, as well as crime tracking data to identify, and ultimately reduce, misuse of the infrastructure;
- Content information including data on major types of content (text, graphics, audio, video, multimedia, hi-definition, etc.) and on content sources;
- Users and use cases by sectors, including information on the major users and the primary services and applications in the critical sectors of health care, education, energy, government, transportation, and public safety and emergency response;
- Economic impact analysis to determine the productivity gains both within the ICT sector and in the critical sectors above; and
- Metadata and common terminology for the broadband industry which, similar to UPC codes, provides consistent terms and definitions not only for metrics and data but also to streamline operations.

The Broadband Best Practices Clearinghouse extends the work of the BIA by focusing on identification and promulgation of best practices for broadband deployments; for operations, including security, robustness, and defense against crime; and for productivity improvements across sectors of education, health care, energy, government, media, and public safety. The BIA provides a repository of trustworthy, up-to-date, and statistically valid data and information on all aspects of broadband which serves as a foundation for the Clearinghouse. Of particular importance to the Clearinghouse will be the BIA work on developing and assessing performance metrics and on economic impact

analysis as these will form the basis for determining the best practices and for quantifying their value and benefits.

Content and Utility

The content and utility of the Broadband Best Practices Clearinghouse are tightly related as it is the combination of information resources and user interfaces and models for user interaction and community engagement that deliver utility and value to the nation. The Broadband Best Practices Clearinghouse should include diverse content in a variety of formats, including text, graphics, and multimedia, and spanning the following categories:

Case Studies that serve to identify and illustrate examples of successful best practices in different geographic and demographic areas, based on a variety of technologies, and aimed at diverse users and sectors. These case studies will summarize the critical success factors in regulatory and governance framework; financial and operational model; permitting, site selection, and construction; cross-sector teaming in health care, public safety, education, and other sectors; services and application support; and user support, user-centered design, user devices, and training.

Lessons Learned that identify both what to do and what not to do. There are, unfortunately, numerous examples of well-intentioned but unsuccessful projects and programs. Avoiding the risks of stranded capital, solutions that are too expensive to

support and maintain, and programs that cannot cost effectively adapt and evolve to provide long lasting value is an important benefit of the Clearinghouse.

Annotated Catalog and links to standards, existing industry best practices, model projects, and other valuable resources. There is a considerable body of useful information currently available including standards publications, information repositories, model projects, and templates. The Clearinghouse will provide an intelligent aggregation and focal point to leverage these resources further by providing, in one place, a library catalog with an extended index including well-written and succinct summaries of these materials, as well as links to the full documents.

Guidelines and Job Aids that serve to organize, synthesize, and integrate the information in the Case Studies, Lessons Learned, and Annotated Catalog to create very accessible and useful education and job aids. These will provide, in brief and easy-to-use formats, tips and summaries targeted towards specific use cases. Given the wealth of information, creating summaries of the most important tips and suggestions for various situations is necessary to support knowledge sharing and advance skill sets.

Templates and Toolkits including sample program materials which support the re-use, replication, and expansion of successful projects, programs, and trials. This information may include project designs, cost models, sample contracts and RFPs (Request for Proposal), metrics, and other materials which will shorten timeframes and reduce risk by allowing fast adaptation of proven approaches.

At the heart of the Best Practices Clearinghouse will be collections of carefully selected and documented Case Studies. The Case Study methodology is a well-proven technique for successful dissemination of best practices. We envision a process by which case studies are submitted for evaluation, assessed according to established criteria by experts, and then documented for inclusion on the Clearinghouse. These Case Studies will provide models and examples of how success was achieved in specific instances and will address the following: What were the goals? What were the major obstacles in achieving them? How were these obstacles surmounted? What were the key lessons learned? What would the team do differently? For what other situations does the project team feel their experience is most relevant? We propose providing concise descriptions of the problem addressed; the realms to which they are most applicable; their pedigree and track record; and their usability and ability to be replicated, along with links to more detailed project and program materials.

An important adjunct to the Case Studies is a thoughtful and comprehensive compendium of Lessons Learned. While the Case Studies will focus on identifying, celebrating, and advertising proven methods of success, Lessons Learned will extract information on both what works and what does not work. Advancement requires promulgation not only of successful approaches, but also of pitfalls, major stumbling blocks, and hard-to-see hazards, so as to reduce wasteful repetition of errors.

The Annotated Catalog, Guidelines, Job Aids, Program Materials, and Templates are all aimed at supporting learning and knowledge transfer at varying degrees of granularity and detail. Catalog summaries and quick, easy-to-use guidelines provide

information in brief formats, while much more in-depth content is available in the program materials including working papers, system designs, cost models, functional architectures, and templates that can be directly leveraged to replicate proven success.

Creating an on-line community and fostering user engagement are critical to the success of the Best Practices Clearinghouse in saving costs, shortening time frames, avoiding errors, and accelerating the advancement of the field. The Clearinghouse should support a variety of user forums and member discussion groups which may cater to distinct users with common needs and challenges based on geography, technology, application domain and other factors. As part of its educational mission, we expect the Clearinghouse to serve as the convener of webinars, workshops, and other events designed to promote peer-to-peer networking and knowledge sharing. This activity may be extended to some form of ExpertConnect functionality which would also serve as frontend to the contract research and consulting services. User input and feedback are important for all activities and categories of content, from submitting candidates for Best Practices to identifying and tagging the events and materials which users find most valuable. The user engagement model should be driven by the best practices in the design, operation, and management of on-line knowledge systems including user interfaces, search, filtering, editorship, and user interaction and feedback mechanisms.

Editorship, Maintenance and Dissemination

Editorship, maintenance, and dissemination are management and operations functions which require proactive, expert leadership. In the previous sections we have described the numerous editorial tasks required, from evaluating and selecting Best

Practices, to creating summaries, synopses, catalogs, and organizing and structuring content. These tasks will be performed by a combination of staff of the Broadband Best Practices Clearinghouse and outside reviewers and guest editors, all under the direction of the management of the Clearinghouse. The roles of outside reviewers and guest editors will follow the successful approaches used in professional journals. This will allow the Clearinghouse to tap into experts across a very wide range of fields in the industry and also provide an important component of user engagement.

We have also previously discussed the requirements for not simply maintaining the site, but adapting and evolving it over time. This requires knowledge and expertise in the disciplines of IT, website design, content management, and user-centered design. As examples, materials on the site will age over time and gradually newer content will replace some of the old. Featured items such as the Project or Tip of the Week will serve to highlight new information. Constructs such as the "Best of 2009" can serve to retain the best information from previous years in easily searchable archives. The Clearinghouse must be dynamic and evolving. We would propose that it be launched first as a beta site and that input be sought from the widest range of users and user communities to drive its development.

Last, but not least, we would propose that dissemination be addressed with a combination of 'push' and 'pull.' The leadership of the Broadband Best Practices Clearinghouse will serve as proactive advocates for the site and this, along with active outreach, will serve to pull users in. Outreach activities will be conducted through a variety of communications, media, and events. The 'push' comes from funding organizations, government groups, and other stakeholders as they come to require

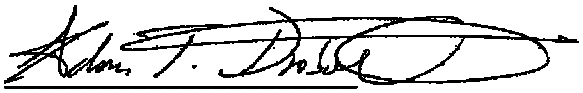
applicants to indicate what best practices are included in proposed projects. Successfully promulgating best practices takes quite a bit of effort. Resistance to change, the power of entrenched ways of thinking and operating, and the well-known 'not invented here' phenomenon can all work against the adoption of best practices. Even in organizations committed to adopting proven approaches, it is difficult to find and identify best practices unless they are gathered together and vetted by a trusted source. Knowledge gaps also play a role making the educational activities of the Clearinghouse necessary and important. In the face of these challenges, it is critical not only that the Broadband Best Practices Clearinghouse be well maintained and offer highest-quality content, but also that it rapidly evolve to include user testimonials and success metrics to demonstrate the value that it delivers. In the future, we anticipate that users will come to rely on and expect that best practices available from the Clearinghouse be followed for broadband deployments, service models, and adoption and use programs.

CONCLUSION

For the foregoing reasons, Telcordia urges the FCC to consider our comments and recommendations. Funding the creation and operation of a Broadband Best Practices Clearinghouse as described above will accelerate the time to value, reduce risks, enhance knowledge transfer, and increase value as we advance our national broadband infrastructure and use it improve productivity in health care, energy, education, public safety, transportation, emergency response and other sectors of our economy and society.

Respectfully submitted,

TELCORDIA

By: 

Dr. Adam T. Drobot, President
Advanced Technology Solutions
Chief Technology Officer
TELCORDIA
One Telcordia Drive
Piscataway, New Jersey
(732) 699-2100
adrobot@telcordia.com

November 16, 2009